

## Remarks

### Preliminary Matters

Claims 5 and 6 has been cancelled because its text was superseded by the amendment to Claim 1. No Claims have been added. No additional fees are required. If determined otherwise, the Office is authorized to charge Deposit Account No. 07-1077 for the amount.

### §112 Rejection

The incorrect dependency of Claim 3 has been corrected.

### §102 Rejection

The following §102(e) rejection was made.

1. Claims 1, 3, 5 and 7-9 using McBride (US7196137)

### § 103 Rejections

The following §103(a) rejections were made.

1. Claims 1, 3 and 5-9 using Abdou-Sabet (US6100334)
2. Claims 1, 3, 5 and 7-9 using Jacob (US7319121)<sup>1</sup>

In response, Applicants have amended their claims and submit these remarks in support of those amendments.

Support for the amendments appears throughout the specification and claims as filed. New text in Claim 1 came from a reversal of a prior, unsuccessful amendment, which text has returned to Claim 2.

All pending Claims 1, 3, and 7-9 as amended are novel over McBride because of importation of the limitation of now-cancelled Claim 6 into Claim 1 via cancellation in

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<sup>1</sup> Jacob is not proper prior art because its earliest date is October 7, 2005 whereas Applicants' priority in the USA extends back to October 7, 2002 as a provisional patent application. Even Applicants' U.S. National Stage entry pre-dates the filing date of 11/246,772 which became Patent '121.

Claim 1 of all other Markush Group members of the compatibilizer ingredient, other than ethylene-octene copolymer<sup>2</sup>.

All pending Claims are patentably inventive over Abdou-Sabet because at Col. 2, Line 64 – Col. 3, Line 38 requires a *norbornene*/a-olefin/diene rubbery polymer, whereas Applicants require EPDM (ethylene/propylene/diene monomer) rubber to be their only rubber in the blend of Claim 1.

The Examiner points to Col. 3, Lines 18-25. Applicants respond with reference to Col. 8, Lines 11-14 for the two rubbery polymers exemplified:

- (a) ethylene-*norbornene*-ethylidene norbornene terpolymer and
- (b) ethylene-propylene-*norbornene*-ethylidene norbornene tetrapolymer.

Neither of (a) or (b) is EPDM.

Applicants also respond with reference to Col. 6, Line 54, wherein Abdou-Sabet identifies EPDM to be “ethylene propylene diene rubber”. At that location, Abdou-Sabet is describing a compatibilizer and is distinguishing his rubbery polymer from his possible compatibilizers. Moreover, Abdou-Sabet at the same location identifies EPR as “ethylene propylene rubber” as another compatibilizer, further operating within naming convention for those skilled in the art.

The Examiner states that EPDM is not necessarily viewed as limited to terpolymers. **Abdou-Sabet views EPDM as a terpolymer.** Abdou-Sabet is one of pioneer inventors of thermoplastic elastomers and vulcanizates, 22 U.S. Patents, and spanning 25 years. Applicants, via Abdou-Sabet used by the Examiner, have rebutted the Examiner’s unconventional view. If the Examiner has an example of the use of EPDM to mean more than a terpolymer, that reference should be brought forth and applied to reject claims.

Applicants also respond with reference to Col. 1, Lines 19-20 and Col. 3, Lines 1-14. Here is the important teaching of Abdou-Sabet. Abdou-Sabet recognizes

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<sup>2</sup> All pending Claims, as amended, would be patentable over Jacob for the same reason, if Jacob were proper prior art.

“Thermoplastic vulcanizates from a polyolefin and either EPDM rubber or butyl rubber are commercially available.”

The reason for describing his rubbery polymer with reference to the formula at the top of Col. 3 and also requiring the disclaimer at Lines 11-14 is because Abdou-Sabet wanted the “*norbornene*” first monomer group *to be different from* the “dienes or polyenes” of the third monomer group, of which he exemplifies *ethylidene norbornene*. Because the second monomer group of  $\alpha$ -olefins could be at least ethylene or ethylene and propylene, his rubbery polymer is different from EPDM.

Therefore, Applicants’ Claims to EPDM are not anticipated or rendered obvious by Abdou-Sabet’s norbornene/  $\alpha$ -olefin/diene teaching. If anything, Applicants are claiming the use of a terpolymer, EPDM, which Abdou-Sabet found in combination with a polyolefin to be “commercially available.”

Applicants also satisfy their burden to prove the propriety of using “consisting essentially of” to exclude Abdou-Sabet’s norbornene/  $\alpha$ -olefin/diene compound.

Applicants satisfy that burden by showing to the Examiner that Abdou-Sabet’s own disclosure identifies the “basic characteristics of the composition” claimed by Applicants to swell in the presence of hydrocarbon oils. The genus of polyolefin:EPDM (of which PP:EPDM is a species) is identified by Abdou-Sabet as being “excluded [in] their use in some applications where extensive exposure to hydrocarbon oils occurs.” (Col. 1, Lines 36-37).

Abdou-Sabet then focuses on his invention of a new rubbery polymer, one which has physical properties including “good resistance to swelling in hydrocarbon oils....” (Col. 1, Lines 50-51). But although the use of this new rubbery polymer “helps increase resistance to swelling in hydrocarbon oils, it may under some circumstances decrease the interaction with the polyolefin thermoplastic ....” (Col. 2, Lines 2-5). So, the addition of a compatibilizer, ethylene- $\alpha$ -olefin copolymers (such as EPDM and EPR) or hydrogenated blocky copolymers (such as SEPS and SEBS), etc. is used to improve dispersion of the new rubbery polymer into the conventional polyolefin.

This explanation by Abdou-Sabet, plus the many examples of the new rubbery norbornene-containing polymer with polyolefin *and* EPDM as a compatibilizer shows the sufficient new property – resistance to swelling in hydrocarbon oils<sup>3</sup> – for the U.S. Patent and Trademark Office to have granted his claims.

If Abdou-Sabet's norbornene-containing rubbery polymer were NOT present, there would not be "good resistance to swelling in hydrocarbon oils..." (Col. 1, Lines 50-51) because the absence of "... the repeat units of norbornene ..." would NOT "...reduce swelling in aliphatic hydrocarbon oils." (Col. 1, Lines 59-60)

Thus, Applicants successfully rebut the Examiner's contention that addition of Abdou-Sabet's new rubbery polymer of norbornene/ a-olefin(s)/diene would not materially affect the novel and basic characteristics of Applicant's claimed thermoplastic vulcanizate of (a) polypropylene; (b) EPDM; (c) ethylene-octene copolymer; and (d) oil.

Applicants request a Notice of Allowance for Claims 1, 3, and 7-9.

If there are any matters that prevent a Notice of Allowance, the Examiner is invited to contact the Undersigned by telephone.

Respectfully submitted by:

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Date

John H. Hornickel  
John H. Hornickel  
Registration No. 29,393

PolyOne Corporation  
33587 Walker Road  
Avon Lake, Ohio 44012  
Telephone: 440-930-3317  
Fax: 440-930-3830  
John.Hornickel@PolyOne.com

<sup>3</sup> Oil swell values of 120 percent or less (Col. 8, Line 2) using ASTM D-471 (Col. 7, Line 63)